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Roles of Midwives in Prenatal Genetic Counseling

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Introduction

In line with the development of genetic services in the HA, and in view of the recent advances in medical technology including options for genetic testing, there is a great demand on prenatal genetic counseling services. Midwives, as advocate of women's health, must be aware of the applications of various genetic testing including the recent ones so as to appropriately counsel the patients before making an informed choice for a prenatal test. Prenatal screening for Down syndrome has become a routine test for all pregnant women in the HA hospitals since July 2010. In the Queen Elizabeth Hospital, midwives are independent sonographers as well as pre and post-test counselors. They are responsible to counsel pregnant women with positive Down syndrome screening results for invasive prenatal diagnosis for karyotyping, and polymerase chain reaction. Recently, new technologies including array comparative genomic hybridization and then non-invasive prenatal testing (NIPT) were available. There was an increasing number of women with positive a Down screening result opted for NIPT. All these create challenges for midwives working in this field.

Objectives

To review the role of midwifery practices in prenatal genetic counseling

Methodology

Thirty one midwives attended the theoretical course and 15 midwives attached to the MFM centre to experience the hands-on practice. Up to date, a total of eight midwives are providing screening services in the department. Four of them are deployed in the MFM Centre. To ensure quality standard of midwifery practices, since 2010 (1) credentialing for midwives providing Down syndrome screening and routine fetal anomaly screening services was established, (2) database to evaluate the performance of the screening programs was set up (3) questionnaire surveys were used to (i) determine the effect of a midwife-led Downs screening service on the women's knowledge on Downs syndrome and satisfaction, (ii) to assess women's knowledge on NIPT (4) theory course, practical training and examinations on

obstetrical ultrasound were organized for midwives; (5) regular meetings and designated programs were arranged for continuous education and update on new technology.

Result

From July 2010 to June 2015, more than 22,000 universal Down syndrome screening were performed by midwives. The percentage of Down screening in the department was increased from 76.7% in 2010 to 94.3% in 2015. The sensitivity was 93% and false positive rate 6.2%. Questionnaire survey showed that there was an improvement on women's knowledge on prenatal screening for Downs Syndrome (paired-samples t test, $p < 0.001$). The overall satisfaction rate on midwife-led Down screening service was 94.6%. Questionnaire survey of NIPT showed that more than 90% of women knew the possibility of false positive and false negative results. Just above 70% of women knew the inferior sensitivity of NIPT compared to an invasive test, and the possibility of an uninformative test result. However, less than 10% knew the complicated aspects of NIPT. Results provided information for midwives to counsel women in NIPT. More than 14,000 routine fetal anomaly screening were performed by midwives with a sensitivity of 75%. These performances were compatible with international standard. Apart from the screening services, they also coordinate care for those high risk pregnant women including preparing women for the invasive diagnostic procedures and in utero therapy, arranging follow up for joint counseling with other specialists such as paediatric surgeon and cardiologist, providing psychological support from antenatal to postnatal periods. Nowadays, trained midwives provide continuity of care by helping women with an informed choice in prenatal screening and genetic testing and support those pregnant women with an abnormal fetus throughout pregnancy and beyond. Our experiences can help develop the future midwifery model in prenatal genetic counseling.